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ABSTRACT

Modern educational technology can be used to enhance teaching and learning, improve administration and management, and improve the communication and information processes for all involved. The assistance educational service agencies can provide for local school districts range from providing information and technical assistance to establishing linkages between technology providers and the consumers. An example is the Carbon-Lehigh (Pennsylvania) Intermediate Unit's involvement with (1) a student tracking system; (2) a Guidance Information System that provides information about occupations, colleges, and financial aids; (3) project "Stay Smart," a model regional contingency plan that brought together existing educational delivery systems; (4) a microcomputer instructional program for gifted elementary students; (5) computer use in special education classrooms; (6) "Special NET," a computerized information system; and (7) teacher-made software. Since technology must be cost effective, needs assesment, planning, and provision of software and trained personnel should precede hardware purchases. (MLF)

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PROVIDING LEADERSHIP IN EDUCATIONAL TECHNOLOGY BY EDUCATIONAL SERVICE AGENCIES

AASA CONVENTION
NEW ORLEANS, LA
FRIDAY, FEBRUARY 26, 1982

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PROVIDING LEADERSHIP IN EDUCATIONAL TECHNOLOGY
BY EDUCATIONAL SERVICE AGENCIES

Educational technology can be defined as the application of science to the management of information through the creative programming of electronic hardware. Electronic technology involves information, methods, and materials rather than just hardware. Modern electronic technology is upsetting the world's applecarts in a way not unlike the industrial revolution. Computers, microcomputers, minicomputers, communication satellites, video records, video discs, and many electronic "toys" are rapidly changing business, consumerism, and our whole world of work and play. We in education cannot afford to ignore the vast changes in our society brought on by the electronic wizardry of modern technology.

We can begin to meet our educational needs in this new technological age if:

(1) inservice programs emphasize the basic concepts and techniques paramount to this new instructional and administrative tool;

(2) we take the time to develop the software compatible to the various modes of learning (I really believe the future will produce something better than just electronic workbooks);

(3) we redevelop our curriculum to be compatible with media-based learning which embraces all electronic medias not just one; and

(4) we go back and look at the student, his individuality, and the difference between motivation and learning for mastery.

Hardware is here. It is cheap and it is getting cheaper. We spend too much time worrying about obtaining the hardware rather than exploring its application and those things necessary for quality utilization through education. It is estimated that there are 52,000 computers or terminals in our schools in the United States but little quality software to use on all that beautiful hardware.

What should be the educational goals for the use of modern technology? At least three come to mind:

(1) enhancing the teaching/learning process;

(2) improving the administrative/management process of public education; and

(3) improving the communication/information process for all involved.

What can educational service agencies do to help local school districts realize the goals desired? The following is not an exhaustive list but should be enough to keep you and your staff busy for a short period of time. Educational service agencies can:

(1) provide useful information regarding pieces of hardware, i.e., computers, both their capabilities and limitations;

(2) demonstrate instructional and management applications;

(3) provide training in computer literacy and "hands-on" skills;

(4) use technology to improve services within the agency;

(5) give technical assistance to schools served;

(6) coordinate or become a clearinghouse for exchange of technological information;

(7) disseminate new developments in technology (hardware, software, maintenance, development of courseware, etc.);

(8) identify potential funding sources from governmental and private arenas;

(9) establish linkages between technology providers and the consumers;

(10) coordinate bidding, purchasing, repair, and maintenance procedures;

(11) develop business and industry support efforts for local schools in the educational service agency;

(12) develop ties between higher education and elementary/secondary education in their technological efforts;

(13) focus on planning efforts with state departments, professional organizations, other ESA's, user groups and the industry;

(14) arrange technical personnel support through employment, contracting for services or time sharing;

(15) make available electronic mail networking capabilities, cable TV, educational TV, microwave communication linkages, etc.;

(16) pilot instructional projects for selected student populations, i.e., gifted, severely and profoundly retarded, etc.

Let me briefly turn to a few of the efforts of the Carbon-Lehigh Intermediate Unit.

A. Student Tracking

Statewide, the system has a 23 item data base. Intermediate Unit #21 carries an additional 44 items. The System is an HP3000 Series 33. Many statistical reports formerly sent by mail and hand tabulated are now sent to the Pennsylvania Department of Education via computer tape. Reports for districts and IU administrators are now queried from data base and printed on a line printer. Federal 94-142 and 89-313 child counts are done through the software. Three IU offices in two counties are tied together by computer terminals with communication and data entry, and query capabilities. There are printers with each terminal for report printing and memos. Address labels are available for mass mailings to parents. Intermediate Unit #21 serves as a regional collection site for Eastern Pennsylvania IU's which are tied in to us by leased lines. This is a part of a statewide network.

B. Guidance Information Services

The Guidance Information System (GIS) is a computer based system which provides information about occupations (both civilian and military), two-year and four-year colleges, graduate and professional schools, and sources of scholarships and financial aids. The fifteen public high schools in our unit, two vocational-technical high schools, and two skill centers run by CETA in addition to our own agency have direct access via portable printing terminals and telephone lines to the GIS 24 hours a day. The Carbon-Lehigh Intermediate Unit provides the time-share computer (HP3000 Series 33) and the program as well as the terminals. The locals provide their own telephone lines and paper costs.

C. Stay Smart Project

As a result of the Arab oil embargo a few years ago, Pennsylvania schools were closed. The subsequent nuclear crisis at Three Mile Island near Harrisburg, which interrupted the education of thousands of children for an extended period, heightened the need for contingency plans that would permit basic skills to be maintained following a natural or man-made disaster. The Carbon-Lehigh Intermediate Unit responded to this statewide need by developing and testing a model regional contingency plan that brought together existing delivery systems: educational television, area newspapers, libraries, and a telephone networking of parents, teachers, and pupils. The plan would be activated during a disaster recovery period as communications are partially or wholly restored.

Project "Stay Smart" was tested during the summer of 1982. Over 1200 pupils participated in the math and language arts skills maintenance program. Appropriate commercially-prepared films and tapes were broadcast by ETV Channel 39 in the morning and repeated in the afternoon. Video tapes of the broadcast were made available to pupils at the regional libraries. Complementary and supplementary language arts and math exercises appeared in the newspapers and, in a different format, in pupil guides. Teachers were on-call to assist parents and pupils via the telephone.

Project "Stay Smart" demonstrated clearly that today's technology can be used to maintain basic skills. However, the project revealed that films, video tapes, video-discs, and even microcomputer software programs must be evaluated for content that is appropriate to specific curriculum goals and objectives and according to levels of achievement: awareness, knowledge, application, mastery, reinforcement, and the affective domain. With approximately 50,000 different films in use in Pennsylvania schools, the task is enormous and requires the use of the computer. Currently, with encouragement from the Pennsylvania Department of Education, the Carbon-Lehigh Intermediate Unit is programming its computer to broaden the base of information regarding films, tapes, etc. This information will be shared via computer with intermediate units and school districts throughout the Commonwealth.

D. Classroom Use for Gifted

The TRS 80 microcomputer has been used with elementary gifted students primarily to accomplish these goals:

1. Introduction of students to computer technology;

2. Examination of computers as a part of modern society;

3. Orientation to use and capabilities of microcomputers;

4. Knowledge of computer languages (especially BASIC);

5. Knowledge of and application of computer programming

We have a planned unit of instruction that lasts from six to eight weeks. Instruction provides opportunities for skill development in creativity, originality, analysis, synthesis, and logical operations. The instructors are itinerants who work with small groups of students in grades 3 through 6.

E. Classroom Use for Handicapped

We are using Apple II computers in some of our special education classrooms. Presently we are working with the more severely handicapped classes including the physically handi-

capped, hearing impaired, and trainable mentally retarded.

Computer assisted instruction is being provided primarily in the language arts and math areas of our curriculum. Student use of the computer has been helpful in developing attending skills, fine motor skills and social skills.

Computer assisted communication configurations are being developed for use with physically handicapped children.

F. Special NET in Pennsylvania

Special NET is a computerized information system developed by means of federal funding by the National Association of State Directors of Special Education (NASDSE). Special NET allows timely communication of accurate information relating to special education. It provides special educators with information related to special education topics. The following topics are in "Bulletin Boards" which are updated daily: Federal Update, Litigation, Publications, New Products, Conference Schedule, Consultant Resource Bank, Bureau of Special Education News, etc. Special NET provides information about new techniques and products, the availability of funds for special projects, changes in laws and regulations, etc.

In Pennsylvania, Special NET is in each of the 29 intermediate units, as well as approximately 20 of the largest school districts in the Commonwealth. Any terminal or microcomputer with telephone connections can receive and send through Special NET. Also in the system at the present time are other states such as West Virgnia, Ohio, Colorado, The Office of Special Education in Washington, etc.

Special NET allows one message to be sent and received by all users, as well as sending or receiving individual messages to only one agency. Through Special NET, it is possible to receive that information on a daily basis.

G. Teacher-Made Software

We have had inservice programs on computer literacy and computer programming. As a result, some of our teachers are developing language arts and math software to be used with their students. One program provides drill on numeric sequencing for retarded students. The student decides which number comes before or after a randomly selected number.

The software is continuously revised as teachers gain new programming skills. Dedicated teachers are utilizing much of their own time for this task.

Let me conclude with a few caveats this portion of the presentation. Technology is not the panacea for all education ills. The computer will not replace the teacher as the basic instructional provider.

The most sophisticated piece of hardware is not necessarily the best. Technology must be cost effective.

Both in management and instructional applications comparisons must be made to see if a certain technology is more cost effective and efficient than another technology; or than other avenues of producing results.

Needs assessment, planning, provision of software, trained personnel, literacy, should precede hardware purchases.

The computer should not become just an electronic workbook.

The electronic future is already here. The collection and management of data in our information society is imperative for our intelligent existence. We cannot wait until this "new fad" is over to determine what we in education can do. If public education does not adapt to the new electronic capability of today's technology, some other institution or group will assume the responsibility.

The PDK Kappan put out an edition in January, 1982 regarding computer technology. May I suggest you read the article by William H. Pritchard, Jr., entitled "Instructional Computing in 2000, A Scenario." It is most interesting.

In the year 2000, will educational service agencies still be providing leadership or will we be back in 1982 as far as educational technology is concerned?